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REMARKS

Entry of this Amendment is proper because it narrows the issues on appeal and does not require further searching by the Examiner.

Claims 46-51, 53-65 are all the claims presently pending in the application. Claims 46, 61 and 62 have been amended to more particularly define the claimed invention.

While the claim amendments made herein may help to distinguish the invention over the prior art, Applicant's intention in making the amendments is for the purpose of particularly pointing out the invention, and not for the purpose of distinguishing the invention over the prior art, narrowing the claims, or for any statutory requirements of patentability. Further, notwithstanding any claim amendments made herein, Applicant's intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution.

Claims 46-48 and 51-55, 59, 62 and 63 stand rejected under 35 U. S. C. §102(b) as allegedly being anticipated by Soules (U. S. Patent No. 6,252,254).

Claims 49-50 stand rejected under 35 U. S. C. §103(a) as allegedly unpatentable over Soules in view of Roberts et al. (U. S. Patent No. 6,335,548).

Claims 56-58, 61 and 64-65 stand rejected under 35 U. S. C. §103(a) as allegedly unpatentable over Soules in view of Chen (U. S. Patent No. 6,531,328).

These rejections are respectfully traversed in view of the following discussion.

I. EXEMPLARY ASPECTS OF THE CLAIMED INVENTION

An exemplary aspect of the claimed invention (e.g., as recited, for example, in claim 46) is directed to a light-emitting apparatus, including a semiconductor light-emitting element that emits light with a predetermined wavelength, and an external lens having a light convergence shape to converge light emitted from the semiconductor light-emitting element, the external lens including a recess to house the semiconductor light-emitting element; and a phosphor layer portion that has a substantially uniform thickness and is conformally formed on a surface, the phosphor layer portion including a phosphor to be excited by irradiating light emitted from the semiconductor light-

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emitting element. The recess is closely disposed surrounding the light-emitting element such that the light convergence shape converges light radiated from the phosphor layer portion into a spot of light.

Importantly, a size of the phosphor layer portion and the semiconductor light-emitting element is small compared to a size of the external lens such that the phosphor layer portion and the semiconductor light-emitting element are identifiable as a point light source (Application at page 14, line 15-page 15, line 3; Figures 5A-5C).

A conventional apparatus (e.g., see Application at Figure 1B) may include a phosphor layer 35B having a luminescence area which is nearly 10 times the luminescence area of the LED 33. As a result, light radiated from the phosphor layer 35B cannot be sufficiently converged and the phosphor layer 35B cannot be identified as a point light source (Application at page 2, lines 11-19).

In the claimed invention, on the other hand, a size of the phosphor layer portion and the semiconductor light-emitting element is small compared to a size of the external lens such that the phosphor layer portion and the semiconductor light-emitting element are identifiable as a point light source (Application at page 14, line 15-page 15, line 3; Figures 5A-5C). This may allow light radiated from the light-emitting device and phosphor layer portion to be sufficiently converged like a spot by the converging optical system. Thereby, the light intensity in a predetermined lighting range can be increased.

In particular, the present Application describes an advantage of an exemplary aspect of the claimed invention as follows:

"(1) Since the external lens 5 is provided with the LED housing recess 50 and it is closely disposed surrounding the LED element 4 while providing the surface of the LED housing recess 50 with the phosphor layer 5A, the phosphor layer 5A can be formed as a uniform and thin layer.

With the uniform and thin phosphor layer 5A, the lowering of light intensity due to light absorption can be prevented. Also, since the size of light source can be minimized substantially without being influenced by the thickness of phosphor layer 5A, light radiated from the light source can be sufficiently converged like a spot by the converging optical system.

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Thereby the light intensity in a predetermined lighting range can be increased.

(2) Even when a large size LED element 4 (e.g., 1000 μ m square) is used, a good convergence characteristic can be secured while suppressing the enlargement of light source size caused by covering the light source with phosphor layer 5A" (Application at page 14, line 15-page 15, line 3).

II. THE ALLEGED PRIOR ART REFERENCES

A. Soules

The Examiner alleges that Soules teaches the invention of claims 46-48 and 51-55, 59, 62 and 63. Applicant would submit, however, that there are features of the claimed invention that are not taught or suggested by Soules.

Moreover, Applicant would submit that Soules does not teach or suggest *"wherein a size of the phosphor layer portion and the semiconductor light-emitting element is small compared to a size of the external lens such that the phosphor layer portion and the semiconductor light-emitting element are identifiable as a point light source"*, as recited in claim 46 and similarly recited in claims 61 and 62 (Application at page 14, line 15-page 15, line 3; Figures 5A-5C) (e.g., see also U. S. Patent Pub. 2004/0223315 at [0010], [0097], [0098] and [0104]). As noted above, this may allow light radiated from the light-emitting device and phosphor layer portion to be sufficiently converged like a spot by the converging optical system. Thereby, the light intensity in a predetermined lighting range can be increased.

Clearly, Soules does not teach or suggest this novel feature.

Indeed, Soules is silent about the dimensional relationship between a light source (e.g., LED 12 and the phosphor coating 14) and the lens 16. Thus, the light source cannot provide a light-emitting device 10 with a sufficient light convergence characteristic since it cannot be identified as a point light source.

Thus, Soules does not teach or suggest that a size of the phosphor layer portion and the semiconductor light-emitting element is small compared to a size of the external lens such that the phosphor layer portion and the semiconductor light-emitting element

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are identifiable as a point light source, as in the claimed invention.

Therefore, Applicant would submit that there are features of the claimed invention that are not taught or suggested by Soules. Therefore, the Examiner is respectfully requested to withdraw this rejection.

B. Roberts and Chen

The Examiner alleges that Soules would have been combined with Roberts to form the claimed invention of claims 49-50, and with Chen to form the invention of claims 56-58 and 64-65. Applicant would submit, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every feature of the claimed invention.

In particular, Applicant respectfully submits that these references are unrelated. Indeed, no person of ordinary skill in the art would have considered combining these disparate references, absent impermissible hindsight.

In fact, Applicant submits that the references provide no motivation or suggestion to urge the combination as alleged by the Examiner. Indeed, these references clearly do not teach or suggest their combination. Therefore, Applicant respectfully submits that one of ordinary skill in the art would not have been so motivated to combine the references as alleged by the Examiner. Therefore, the Examiner has failed to make a prima facie case of obviousness.

Moreover, Applicant would submit that neither Soules, nor Roberts, nor Chen, nor any alleged combination thereof teaches or suggests "*wherein a size of the phosphor layer portion and the semiconductor light-emitting element is small compared to a size of the external lens such that the phosphor layer portion and the semiconductor light-emitting element are identifiable as a point light source*", as recited in claim 46 and similarly recited in claims 61 and 62 (Application at page 14, line 15-page 15, line 3; Figures 5A-5C) (e.g., see also U. S. Patent Pub. 2004/0223315 at [0010], [0097], [0098] and [0104]). As noted above, this may allow light radiated from the light-emitting device and phosphor layer portion to be sufficiently converged like a spot by the converging optical system. Thereby, the light intensity in a predetermined lighting

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range can be increased.

Clearly, Roberts does not teach or suggest this novel feature.

Indeed, Roberts is simply directed to a semiconductor radiator emitter package, in which a radiation emitter 202 (e.g., LED chip) is mounted on lead frame 201 (Roberts at col. 26, lines 18-29).

That is, like Soules, nowhere does Roberts teach or suggest that a size of the phosphor layer portion and the semiconductor light-emitting element is small compared to a size of the external lens such that the phosphor layer portion and the semiconductor light-emitting element are identifiable as a point light source, as in the claimed invention.

Likewise, Chen does not teach or suggest these features of the claimed invention.

Indeed, Chen simply teaches forming an LED in a groove 11 formed in a silicon substrate 8 (Chen at col. 4, lines 41-65) and forming the structure 23 over the groove 11. This is COMPLETELY unrelated to the claimed invention.

Thus, like Soules and Roberts, nowhere does Chen teach or suggest that a size of the phosphor layer portion and the semiconductor light-emitting element is small compared to a size of the external lens such that the phosphor layer portion and the semiconductor light-emitting element are identifiable as a point light source, as in the claimed invention.

Therefore, neither Roberts nor Chen make up for the deficiencies of Soules.

Therefore, Applicant would submit that these references would not have been combined and even if combined, the combination would not teach or suggest each and every feature of the claimed invention. Therefore, the Examiner is respectfully requested to withdraw this rejection.

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 46-51, 53-65, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to

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pass the above application to issue at the earliest possible time.


Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Date: 10/5/09


McGinn IP Law Group, PLLC
8321 Old Courthouse Road, Suite 200
Vienna, VA 22182-3817
(703) 761-4100
Customer No. 21254

Respectfully Submitted,


Phillip E. Miller, Esq.
Registration No. 46,060

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that the foregoing was filed by facsimile with the United States Patent and Trademark Office, Examiner Andrew Owens Arena, Group Art Unit # 2811 at fax number (571) 273-8300 this 5th day of October, 2009.


Phillip E. Miller
Reg. No. 46,060